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Some comments on Schodde & Bock (2016) on gender agreement

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Schodde & Bock (2016) put forward their interpretation of Art. 31.2.2 of ICZN (1999) taking selected cases from Aves, and contended that five names, of 27 examined, may require correcting. The authors offered their conclusion that the requirement for gender agreement in species-group names is the single biggest cause of nomenclatural instability in zoology, and, to resolve it, they advocated replacing gender agreement by original spellings for species-group names. Here, we wish to offer some comments.

Olson (1987) argued that the perception of stability is very largely caused by evolving knowledge leading to changes in attributions to genus, and thus in some cases consequent adjustments to the final syllable of names based on the rules for gender agreement. We agree completely that revised phylogenetic arrangements must be seen as the principal root cause of name changes in recent decades; moreover, as we hope these represent the advancement of science, we believe such change is appropriate. On this basis then, instability is a necessary part of our nomenclatural practice. By contrast, instability due to varied usage of the spelling of any species-group name over time is minimal and computers can be programmed to catch such variations.

Schodde & Bock based their comments on appendices (on CDs) to vols. 1 and 2 of the *Howard and Moore complete checklist of birds of the world*, fourth edn. (Dickinson & Remsen 2013, Dickinson & Christidis 2014). These appendices¹ are, respectively, David & Dickinson (2013) and David & Dickinson (2014). In these the authors explored as many cases as they could identify of individual taxon names that have been quite widely used both in original form and in variant forms, and appeared to represent problems. Interestingly, a variety of issues needed to be addressed, but the total number of cases is only 79 non-passerine names (vol. 1) and 163 passerine names (vol. 2), which can be related to either the c.28,000 species-group names listed in the above-mentioned checklist or to the figure of 130,000 species-group names, which is a conservative estimate of the sum of avian names in use plus the many synonyms that form part of our knowledge base.

We quite understand why, from these, Schodde & Bock selected for discussion the group of names that they did.

Interpretation of Art. 31.2.2 is not straightforward because some words and phrases are not clearly defined. In essence, the rule states that a species-group name must be treated as a noun in apposition when the following three conditions are all met: (1) where the author did not indicate whether he or she regarded it as a noun or as an adjective; (2) where the name may be regarded as a noun as well as an adjective; (3) and where evidence of usage is not decisive. Unfortunately, the expression 'evidence of usage' as used by the Code leads to interpretation because the word 'usage' means 'established practice' as well as 'action of using'. However, the wording of the Example accompanying Art. 31.2.2 is enlightening. This, in a point made on the basis of a subsequent combination where the name *Cephenemyia phobifera* 'has been often used' states that 'the original binomen was *Oestrus phobifer* Clark,

¹ PDFs of these appendices are available from the authors but are on the CD inserted at the back of the relevant volume of the book.

1815; since *Oestrus* is masculine, *phobifer* in that binomen ... is to be treated as a noun in apposition' and that the spelling *phobifer* is to be maintained, i.e. it is invariable. This was ignored by Schodde & Bock (2016). A word by word translation of the French text of Art. 31.2.2 yields 'If an epithet may be considered either as a noun or as an adjective, and the use to which it is put does not permit a conclusion, and if its author did not settle the matter, it must be treated as a noun in apposition.' Both English and French texts, and their examples, make clear that it is usage in the original combination that should prevail in any case of doubt, as explained by David & Gosselin (2011).

Schodde & Bock (2016) wrote: 'As is clarified in the appended "Example", usage here means that if the species name is used elsewhere in the original publication with the same or different gender ending in combination with another generic name of different gender, then it is respectively a noun or adjective.' However, the original publication is not the original binomen, and we consider that the Code, based on the very Example that Schodde & Bock referred to, clearly explains that usage in the original combination is to be considered as determinant.

Schodde & Bock (2016) then considered that Linnaeus (1766) used *dominicus* and *dominica* as adjectival epithets when he introduced *Tangara dominica* (p. 316), now *Dulus dominicus*, and *Colymbus dominicus* (p. 223), now *Tachybaptus dominicus*. However, *dominicus* and *dominica* can already be viewed as the classical Latin adjective *dominicus, a, -um* (Lewis & Short 1984).

The importance of an author's original epithet(s) is central to applying the rules; for example, the original *Tangara bresilia*² Linnaeus, 1766, now *Ramphocelus bresilius* (see Storer 1970: 315, Dickinson & Christidis 2014: 398) was treated by Linnaeus as variable while Schodde & Bock (2016) considered this to be a noun in apposition³.

Linnaeus' habit of modifying the spelling of species-group names, sourced from pre-Linnaean works—which are inadmissible from their original sources because they antedate the 1758 starting point for zoological nomenclature—is well exemplified by his treatment of names that he combined with 'Tanagra'⁴ [= *Tangara*] (see Linnaeus, 1766: 313–317). It can be seen that Linnaeus used four modified nouns: *Jacapa* (instead of *Jacapu* Marcgrave), *Jacarina* (instead of *Jacari* Marcgrave), *Episcopus* (as in *Episcopus* Brisson) and *Sayaca* (instead of *Sayacu* Marcgrave); as well as eight modified adjectives: *rubra* (instead of *canadensis* Brisson), *cyanea* (instead of *caerulea* Catesby), *cayana* (instead of *cayanensis viridis* Brisson), *cayana* (instead of *cayanensis nigra* Brisson), *dominica* (instead of *dominicensis* Brisson), *virens* (instead of *brasiliensis viridis* Brisson), *chlorotica* (instead of *nigro-lutea* Brisson) and *bresilia* (instead of *bresilica* Belon). Schodde & Bock (2016) should thus have concluded that *bresilia* Linnaeus, 1766, is an adjectival epithet, and of course Linnaeus (1766: 314–317) consistently used 'Brasilia' when naming the country.

It is, of course, regrettable that interpretation of Art. 31.2.2 is open to diverging views, but this has to be placed in perspective. In Aves, species-group names now in use number c.30,000 (compared to perhaps some two million across Zoology), including some 13,270

² The original has *bresilia* with the b in lower case (see Linnaeus, 1766: 314).

³ It is worth remarking that Linnaeus (1758, 1766) provided specific epithets that either began, or did not begin, with a capital letter. His use of an initial capital letter has often been interpreted as signalling a noun in apposition. In fact, Linnaeus used the initial capital to signal names that he considered invariable so in some cases these were nouns in apposition, in others they were genitives and in a few cases nominalised adjectives.

⁴ This spelling has since been replaced by *Tangara* because the Code has admitted genus-group names from Brisson (1760), taking precedence over *Tanagra* Linnaeus, 1764: 30; see ICZN (1913). In contrast to this decision in respect of genus-group names, Brisson's species-group names are in general not accepted under the Code—see also ICZN (1955, 1963).

'nouns' (genitives, nouns in apposition), some 15,760 adjectives and 170 that fall under Art 31.2.2. The latter thus represent 0.57% of avian names and perhaps just 0.0085% of zoological names. We agree that original names are the best basis for consistency, but the various relevant Articles of the Code requiring modification should be retained and decisions by the Commission that directly affect original spellings are reasons to reject outright abolition of gender agreement.

We support maintenance of gender agreement in zoological nomenclature, but questions still arise, e.g. in cases of incorrect original spellings. Do Schodde & Bock (2016) support use of *capicolam* Sundevall, 1857 (now *Streptopelia capicola*), *bonapartei* Boissonneau, 1840 (now *Coeligena bonapartei*), *Pieaoides* Hodgson, 1839 (now *Heterophasia picaoides*), *Novoe-Hollandiae* Vieillot, 1816 (now *Recurvirostra novaehollandiae*), and (see Schodde *et al.* 2013) *melanoramphos* Vieillot, 1817?

We suggest that this spelling issue be focused on incorrect original spellings and that it might be useful to develop some clear rules, to be adopted into the Code, for the treatment of obviously incorrect original spellings. However, perhaps Bock & Schodde would accept all such cases. We imagine that there will be as many objections to this as have been put forward as a basis for the abolition of gender agreement.

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